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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Christopher James Philip Clements

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Edwards Vacuum, Inc.

2041 MISSION COLLEGE BOULEVARD

SUITE 260

SANTA CLARA, CA 95054

EXAMINER

MULLER, BRYAN R

ART UNIT

PAPER NUMBER

3727

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/578,802	Applicant(s) CLEMENTS ET AL.	
	Examiner BRYAN R. MULLER	Art Unit 3727	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-11,13-15 and 19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-11,13-15 and 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 May 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/20/2008</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Invention 1 in the reply filed on 3/10/2009 is acknowledged. Applicant has cancelled all claims reading on the non-elected invention, therefore no claims have been withdrawn.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the injecting means extending *about* the body (claims 1 and 15) and the means for reciprocally moving that is arranged to rotate the shaft (claims 10 and 15) must be shown or the feature(s) canceled from the claim(s). The injecting means is understood to be the orifice in one side of the body, which is not shown to extend about the body but is only located in one side of the body in the drawings and there is no structure shown in the drawings or disclosed in the specification that provides the function of rotating the shaft while reciprocating. No new matter should be entered. The new drawing Figure 4 is considered to introduce new matter, such as a pin, cam slots and o-ring seals, which are not supported by the original application. Therefore, new Figure 4 has not been entered and accordingly, the amendments to the specification, adding description of Figure 4, have also not been entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended

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replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 10 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear how the applicant provides the "means for reciprocally moving" with the function of rotating the shaft or how the double acting

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pneumatic cylinder functions to rotate the shaft. There is no specific disclosure in the original application that describes how the moving mechanism rotates the shaft.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, 5, 8-11, 13-15 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Awaji (6,090,183) in view of Wang (6,263,535) and Dhingra et al. (5,659,915).

7. In reference to claim 1, Awaji discloses an apparatus for reducing clogging in a pipe comprising a body, being part of the pipe to be cleaned, having a shaft movable within the body a brush attached to one end of the shaft, means for moving the shaft within the pipe to dislodge particulates within the pipe and injecting means (7 and 10) extending about the body (heater 10 extends about the body) for injecting heated compressed gas (1 and 3; heated by heater 10) into the body to inhibit particulate deposition. However, Awaji fails to disclose that the body may have an open end that may be detachably connected to an aperture of a pipe, that the brush may be a scraper or that the means for moving may reciprocally move the scraper into and out of the pipe. Both Wang and Dhingra disclose similar apparatuses having scrapers or brushes that move within a pipe to dislodge particulates deposited within the pipe and both Wang

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and Dhingra teach that the apparatus is formed as a body with an open end that is detachable to an aperture on a pipe, such that the body may be easily connected or disconnected to any standard pipe to allow for easy installation of the cleaning apparatus and to allow for easy removal or replacement of the apparatus for repair, if necessary, without disassembling the pipes, which will allow the pipe to remain functional even if the cleaning apparatus is removed or no longer needed. Further, Wang and Dhingra both disclose that the moving means for the shaft will reciprocally move the brush or scraper into and out of the pipe to clean the pipe so that the brush or scraper is removed from the pipe when the cleaning apparatus is not in use, to reduce blockage of the flow within the pipe and reduce the chance of particle deposition on the shaft or scraper. Finally, Wang also discloses alternate embodiment, one of which providing a brush for cleaning the inside of the pipe and the other having a scraper for scraping the inside of the pipe, thus teaching that a brush and a scraper are known equivalents in the art. Therefore, it would have been obvious to move the driving means, shaft and brush of Awaji to an exterior body that is removably attached to the pipe, as taught by Wang and Dhingra, to allow for easy attachment and removal of the cleaning apparatus for repair or replacement, to replace the driving means with a driving means that will reciprocally move the brush into and out of the pipe, also taught by Wang and Dhingra, to reduce blockage of the flow within the pipe when the cleaning apparatus is not active and reduce the chance of particle deposition on the shaft or scraper and finally to replace the brush of Awaji with a scraper, taught as a known equivalent in the art by Wang.

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8. In reference to claims 9, 10 and 15, Dhingra further discloses that the moving means is provided in the form of a double acting (inherently double acting to reciprocate and rotate) pneumatic cylinder (28) that not only reciprocates, but also rotates the brush to more effectively clean the interior of the pipe. Therefore, it further would have been obvious to replace the moving means of Awaji with a double acting pneumatic cylinder, having a piston within the cylinder that is connected to a second end of the shaft opposite the scraper, to reciprocate and rotate the scraper to more effectively clean the pipe.

9. In reference to claim 2, Awaji further discloses that the injecting means comprises an orifice (7) located on an inner surface of the body.

10. In reference to claims 5 and 19, Awaji further discloses that the heating means (10) extends about the body and is preferably used to heat the gas to a temperature between 150°C and 1500°C (Col. 6, lines 40-42), which overlaps or touches the claimed ranges set forth in claims 5 and 19, making the claimed ranges obvious.

11. In reference to claim 8, Awaji further discloses that the brush is preferably made from a material that is heat resistive and will maintain integrity under the conditions being produced within the pipe, specifically citing stainless steel as a most preferable material (Col. 11, lines 10-23). Therefore, it further would have been obvious to form the scraper, in place of the brush of Awaji, out of stainless steel, to maintain integrity during use.

12. In reference to claim 11, as discussed supra, Wang and Dhingra both teach that the cleaning apparatus is capable of removing the brush or scraper from the pipe when

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not cleaning, which will provide the scraper with a first position that is fully withdrawn from the pipe and is substantially contained within the body so as to not be exposed to the gases within the pipe.

13. In reference to claims 13 and 14, Dhingra further discloses a scraper (19) mounted on the reciprocating shaft (22) and Dhingra teaches that a scraping means (23) may be provided around the shaft, which also acts as a seal, to remove any particulate from the shaft during movement to prevent any particulate from passing into the moving means. Therefore, it further would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an annular seal to the apparatus of Awaji for the shaft to pass through, which will act as a means for preventing particulates from being drawn into the means for reciprocally moving and as scraping means for scraping particulate from the shaft during movement, as taught by Dhingra, to prevent any particulate from passing into the moving means, which may cause damage, and to prevent build up of particulate matter on the shaft.

14. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Awaji (6,090,183) in view of Wang (6,263,535) and Dhingra et al. (5,659,915) as applied to claim 1 and further in view of Head (GB 2342372A).

15. As discussed supra, Wang teaches that the brush of Awaji may alternatively be a scraper, but fails to disclose that the scraper may be in the form of an open helical coil. Head discloses a similar cleaning apparatus for cleaning the interior of a pipe, the apparatus having a scraper, wherein the scraper (10) may be formed as a helical coil

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having sharp corners, also defining an open construction, to scrape the internal surfaces of the pipes and the structure will allow the scraper to stretch or compress as it is moved along the pipe to more effectively contact every portion of the pipe even if the pipe may have slightly different diameters. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the scraper of Awaji, Wang and Dhingra may be replaced with the scraper taught by Head, having a helical coil and open construction to more effectively scrape the inside of the pipes.

Response to Arguments

16. Applicant's arguments with respect to all pending claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hirth et al (4,986,347) and Lu et al. (5,966,767) both disclose apparatuses for preventing clogging in pipes that have at least some similar structure and function as the applicant's claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRYAN R. MULLER whose telephone number is (571)272-4489. The examiner can normally be reached on Monday thru Friday 8-5.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Monica S. Carter can be reached on (571) 272-4475. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bryan R Muller/
Primary Examiner, Art Unit 3727
5/25/2009